



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,152	03/19/2004	Derek A. Seeber	650265.00005	8622
26710	7590	07/08/2005		
QUARLES & BRADY LLP 411 E. WISCONSIN AVENUE SUITE 2040 MILWAUKEE, WI 53202-4497			EXAMINER SHRIVASTAV, BRIJ B	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/805,152

Applicant(s)

SEEBER, DEREK A.

Examiner

Brij B. Shrivastav

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/27/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### **Examiners Amendment**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

There are only 1-27 claims (not 1-28) in the application. This discrepancy is due to numbering the claims 22-27 as claims 23-28. Therefore, hereinafter claims 23-28 are considered as claims 22-27. Accordingly, the independent claims are 22, 24 and 27; and claim 23 depends on claim 22, and claims 25 and 26 depend on claim 24.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishihara (US 5,916,161).

As regards to claims 1 and 12, Ishihara teaches a high field MRI system and method for operating the system, including a polarizing magnet sized to receive at least a portion of a patient (figures 1 and 2, numeral 10), and RF transmitter electronics for stimulating the patient tissue in the polarizing magnetic field to acquire NMR signals

Art Unit: 2859

(figure 1, numerals 17, 19, 27). Further, the system is having electronics to extract tissue temperature data from at least some of the NMR signals (figures 1, 2; numerals 21, 22, 26), and to extract tissue image data from at least some of the NMR signals for producing an NMR image (figures 1 and 2, numerals 18, 19, 28; columns 2 and 3, lines 1-25 and 29-68); and repeating collection of NMR signals for the production of an MRI image only while the tissue temperature measurements are below a safety threshold (figure 2, columns 1 and 4, lines 23-39 and 13-56).

As regards to claim 22, Ishihara teaches a local coil, including an antenna array coupling to a region of interest in a patient; the antenna is connected to a signal processing circuitry of an MRI machine (figure 1, numeral 1, 19, 20 and 28). Further, a local oscillator producing a narrow band radiofrequency signal and saturating tissue protons only when the tissue has reached a safety temperature limit (figure 1 and 2, numeral 17; column 4, lines 13-56).

As regards to claim 24, Ishihara teaches a computer program for execution on a MRI machine, including the program steps of acquiring NMR signals from a patient (figures 1 & 2) and extracting tissue temperature data and tissue image data from at least some of the NMR signals for producing an MRI image (figure 2, numerals A1-A7), and repeating the steps while the tissue temperature measurements are below a safety level (figure 2, numerals A8-A12).

As regards to claim 27, Ishihara teaches of modeling the thermodynamic qualities of tissue, including the steps of exposing the tissue to RF energy at least in part incident to the acquisition of NMR signals from a patient (figures 2 and 6-8).

Further, extracting tissue temperature data from the NMR signals, and modeling the tissue based on the temperature change of the tissue as a function of deposited RF energy (figures 10-15).

As regards to claims 2-11, 13-21, 23, and 25-26, Ishihara further teaches various limitations expressed in these claims related to temperature change, and accordingly to acquire or not to acquire MRI signals, as the safety threshold demands, to establish base line temperature and temperature dependence of phase shift of NMR signals by making changes in RF waveform frequency to acquire NMR signals and extract data from the signals (figure 2-8; column 4-11).

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B. Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

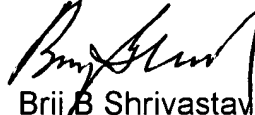
Application/Control Number: 10/805,152

Page 5

Art Unit: 2859

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 1, 2005

  
Brij B Shrivastava  
Examiner  
Art Unit 2859

\*\*\*